

Table 1. - Results of the Bioaccumulation Testing (Mean Concentration wet weight)

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: Macoma nasuta

	PDS	Composite 1	Composite 2	Composite 3
<u>Metals (ug/g wet weight)</u>				
Arsenic	1.9300	2.2400 S	2.2100 NS	2.0000 NS
Cadmium	0.0310	0.0400 S	0.0330 NS	0.0350 NS
Chromium	0.3420	0.4660 S	0.3540 NS	0.3760 NS
Copper	1.4800	2.1100 S	1.5400 NS	1.7600 NS
Lead	0.2880	0.5140 S	0.4600 S	0.6360 S
Mercury	0.0080	0.0080 NS	0.0080 NS	0.0070 NS
Nickel	0.4180	0.5020 S	0.4220 NS	0.4560 S
Zinc	10.4200	11.7000 S	11.8400 S	11.7000 S
<u>PAHs (ng/g wet weight)</u>				
<u>Carcinogenic PAHs</u>				
Benzo(a)anthracene	2.0000 a	12.0000 c S	42.2000 c S	12.0000 ac S
Benzo(a)pyrene	1.0000 a	5.8800 ac S	9.8000 ac S	1.0000 ac NS
Benzo(b)fluoranthene	2.0000 a	13.0000 c S	17.0200 c S	9.3000 ac S
Benzo(k)fluoranthene	9.0000 a	11.7000 c S	18.8000 c S	11.7200 ac S
Chrysene	4.0000 a	11.8000 c S	35.4000 c S	12.6200 c S
Dibenzo(a,h)anthracene	1.0000 a	1.0000 ac NS	2.0000 ac S	2.0000 ac S
Indeno(1,2,3-c,d)pyrene	1.0000 a	1.0000 ac NS	2.0000 ac S	2.0000 ac S
<u>PAHs</u>				
Acenaphthene	1.0000 a	1.0000 ac NS	4.4000 ac S	2.0000 ac S
Acenaphthylene	3.0000 a	3.0000 ac NS	5.0000 ac S	5.0000 ac S
Anthracene	6.0000 a	6.0000 ac NS	10.4600 ac S	10.0000 ac S
Benzo(g,h,i)perylene	1.0000 a	1.0000 ac NS	2.0000 ac S	2.0000 ac S
Fluoranthene	3.0000 a	29.0000 c S	224.000 c S	38.8000 c S
Fluorene	2.0000 a	2.0000 ac NS	4.0800 ac S	3.0000 ac S
Naphthalene	2.0000 a	2.0000 ac NS	4.0000 ac S	4.0000 ac S
Phenanthrene	7.4000 a	7.7200 a NS	35.0000 S	8.9600 a NS
Pyrene	5.0000 a	62.0000 c S	204.000 c S	89.8000 c S
PAH Total	50.4000	170.100	620.160	214.200
<u>PCB Congeners (ng/g wet weight)</u>				
Total PCBs	1.2700	3.3600 S	3.0000 S	3.2800 S

BL - Analysis was confounded due to naphthalene found in the blank.

U - Analyte undetected in all replicates; value is mean of 1/2 reported detection limits.

NA - Not Analyzed.

S - Treatment mean is statistically greater than reference mean (State statistical test and data transformation methods used).

a - Analyte undetected in at least one replicate. Means calculated using 1/2 reported detection limit for undetected replicates

b - Analyte was detected in the treatment at a higher mean concentration than reference;
statistical analysis not conducted because analyte was not detected in any reference replicates.

NS - Treatment mean is not significantly greater than reference mean (State statistical and data transformation methods used).

J - Reported estimated concentration below the batch-specific Practical Quantitation Limit but greater than or equal to the matrix-specific Method Detection Limit.

c - Analyte was detected in the Treatment sample at a higher mean concentration than Reference;
statistical analyses not conducted because analyte was not detected in any Reference replicates.

d - Analyte was not detected in the Treatment sample. Statistical analyses not conducted.

Table 1. - Results of the Bioaccumulation Testing (Mean Concentration wet weight)

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: Macoma nasuta

	PDS	Composite 1	Composite 2	Composite 3	
<u>Pesticides</u>					
Aldrin	0.0300	a	0.0300 ac NS	0.0300 ac NS	0.0300 ac NS
alpha-Endosulfan	0.0400	a	0.0400 ac NS	0.0400 ac NS	0.0400 ac NS
beta-Endosulfan	0.0500	a	0.0500 ac NS	0.0500 ac NS	0.0500 ac NS
Dieldrin	0.1300	a	0.0400 a NS	0.0400 a NS	0.1140 a NS
Endosulfans	0.0900		0.0900	0.0900	
Endrin	0.0500	a	0.0500 ac NS	0.0500 ac NS	0.1260 ac NS
Heptachlor	0.0600	a	0.0600 ac NS	0.0600 ac NS	0.0600 ac NS
Heptachlor epoxide	0.0200	a	0.0200 ac NS	0.0200 ac NS	0.0200 ac NS
Hexachlorobenzene	0.0600	a	0.0600 ac NS	0.0600 ac NS	0.0600 ac NS
Lindane	0.3000		0.2660 a NS	0.0800 a NS	0.0800 a NS
Methoxychlor	0.2600	a	0.2600 ac NS	0.2600 ac NS	0.2600 ac NS
Toxaphene	28.0000	a	28.0000 ac NS	28.0000 ac NS	28.0000 ac NS
cis-Chlordane	0.0700	a	0.0700 ac NS	0.1600 ac NS	0.0700 ac NS
cis-Nonachlor	0.0300	a	0.2960 c S	0.5860 c S	0.5640 c S
Oxychlordane	0.0200	a	0.0200 ac NS	0.0200 ac NS	0.0200 ac NS
trans-Chlordane	0.0600	a	0.0600 ac NS	0.0600 ac NS	0.0600 ac NS
trans-Nonachlor	0.0500	a	0.0500 ac NS	0.0500 ac NS	0.0500 ac NS
Total Chlordanes	0.2300		0.4960	0.8760	0.7640
4,4'-DDD	0.0800	a	0.6380 c S	0.3320 ac S	0.5940 ac S
4,4'-DDE	0.0200	a	0.4520 c S	0.0200 ac NS	0.2040 ac NS
4,4'-DDT	0.0300	a	0.1180 ac NS	0.0300 ac NS	0.1120 ac NS
Total DDT	0.1300		1.2080	0.3820	0.9100

BL - Analysis was confounded due to naphthalene found in the blank.

U - Analyte undetected in all replicates; value is mean of 1/2 reported detection limits.

NA - Not Analyzed.

S - Treatment mean is statistically greater than reference mean (State statistical test and data transformation methods used).

a - Analyte undetected in at least one replicate. Means calculated using 1/2 reported detection limit for undetected replicates

b - Analyte was detected in the treatment at a higher mean concentration than reference;
statistical analysis not conducted because analyte was not detected in any reference replicates.

NS - Treatment mean is not significantly greater than reference mean (State statistical and data transformation methods used).

J - Reported estimated concentration below the batch-specific Practical Quantitation Limit but greater than or equal to the matrix-specific Method Detection Limit.

c - Analyte was detected in the Treatment sample at a higher mean concentration than Reference;
statistical analyses not conducted because analyte was not detected in any Reference replicates.

d - Analyte was not detected in the Treatment sample. Statistical analyses not conducted.

Table 1. - Results of the Bioaccumulation Testing (Mean Concentration wet weight)

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: *Nereis virens*

	PDS	Composite 1	Composite 2	Composite 3
<u>Metals (ug/g wet weight)</u>				
Arsenic	2.0300	1.8100 NS	2.0000 NS	1.7000 NS
Cadmium	0.0340	0.0300 NS	0.0340 NS	0.0340 NS
Chromium	0.0750	0.0630 NS	0.0700 NS	0.0620 NS
Copper	1.0500	1.0000 NS	1.0800 NS	1.0400 NS
Lead	0.1080	0.0860 NS	0.0940 NS	0.0840 NS
Mercury	0.0060 a	0.0060 NS	0.0060 NS	0.0030 a NS
Nickel	0.1600	0.1110 NS	0.1380 NS	0.1380 NS
Zinc	10.3600	18.5800 NS	14.2800 NS	10.9800 NS
<u>PAHs (ng/g wet weight)</u>				
<u>Carcinogenic PAHs</u>				
Benzo(a)anthracene	3.0000 a	3.0000 ac NS	3.0000 ac NS	3.0000 ac NS
Benzo(a)pyrene	1.0000 a	1.0000 ac NS	1.0000 ac NS	1.0000 ac NS
Benzo(b)fluoranthene	3.0000 a	3.0000 ac NS	3.0000 ac NS	3.0000 ac NS
Benzo(k)fluoranthene	14.0000 a	14.0000 ac NS	14.0000 ac NS	14.0000 ac NS
Chrysene	6.0000 a	6.0000 ac NS	6.0000 ac NS	6.0000 ac NS
Dibenzo(a,h)anthracene	2.0000 a	2.0000 ac NS	2.0000 ac NS	2.0000 ac NS
Indeno(1,2,3-c,d)pyrene	2.0000 a	2.0000 ac NS	2.0000 ac NS	2.0000 ac NS
<u>PAHs</u>				
Acenaphthene	2.0000 a	2.0000 ac NS	20.2000 c S	2.0000 ac NS
Acenaphthylene	5.0000 a	5.0000 ac NS	5.0000 ac NS	5.0000 ac NS
Anthracene	10.0000 a	10.0000 ac NS	10.0000 ac NS	10.0000 ac NS
Benzo(g,h,i)perylene	2.0000 a	2.0000 ac NS	2.0000 ac NS	2.0000 ac NS
Fluoranthene	5.0000 a	5.0000 ac NS	57.4000 c S	5.7200 ac NS
Fluorene	3.0000 a	3.0000 ac NS	3.0000 ac NS	3.0000 ac NS
Naphthalene	4.0000 a	4.0000 ac NS	4.0000 ac NS	4.0000 ac NS
Phenanthrene	8.3000 a	8.4800 a NS	8.8400 a NS	8.0000 a NS
Pyrene	7.0000 a	7.0000 ac NS	36.2000 c S	10.4400 ac S
PAH Total	77.3000	77.4800	177.640	81.1600
<u>PCB Congeners (ng/g wet weight)</u>				
Total PCBs	4.1400	4.6800	4.2000 S	4.0900 S

BL - Analysis was confounded due to naphthalene found in the blank.

U - Analyte undetected in all replicates; value is mean of 1/2 reported detection limits.

NA - Not Analyzed.

S - Treatment mean is statistically greater than reference mean (State statistical test and data transformation methods used).

a - Analyte undetected in at least one replicate. Means calculated using 1/2 reported detection limit for undetected replicates

b - Analyte was detected in the treatment at a higher mean concentration than reference;
statistical analysis not conducted because analyte was not detected in any reference replicates.

NS - Treatment mean is not significantly greater than reference mean (State statistical and data transformation methods used).

J - Reported estimated concentration below the batch-specific Practical Quantitation Limit but greater than or equal to the matrix-specific Method Detection Limit.

c - Analyte was detected in the Treatment sample at a higher mean concentration than Reference;
statistical analyses not conducted because analyte was not detected in any Reference replicates.

d - Analyte was not detected in the Treatment sample. Statistical analyses not conducted.

Table 1. - Results of the Bioaccumulation Testing (Mean Concentration wet weight)

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: Nereis virens

	PDS	Composite 1	Composite 2	Composite 3	
<u>Pesticides</u>					
Aldrin	0.0300	a	0.0300 ac NS	0.0300 ac NS	0.0300 ac NS
alpha-Endosulfan	0.0400	a	0.0400 ac NS	0.0400 ac NS	0.0400 ac NS
beta-Endosulfan	0.0500	a	0.0500 ac NS	0.0500 ac NS	0.0500 ac NS
Dieldrin	0.0400	a	0.0400 ac NS	0.1220 ac NS	0.0400 ac NS
Endosulfans	0.0900		0.0900	0.0900	
Endrin	0.3200	a	0.8720 S	0.8600 a NS	0.1880 a NS
Heptachlor	0.0600	a	0.0600 ac NS	0.2380 ac S	0.0600 ac NS
Heptachlor epoxide	0.0200	a	0.0200 ac NS	0.0200 ac NS	0.0200 ac NS
Hexachlorobenzene	0.0600	a	0.0600 ac NS	0.0600 ac NS	0.0600 ac NS
Lindane	0.5000	a	0.1280 a NS	0.0800 a NS	0.0800 a NS
Methoxychlor	0.2600	a	0.2600 ac NS	0.2600 ac NS	0.2600 ac NS
Toxaphene	28.0000	a	28.0000 ac NS	28.0000 ac NS	28.0000 ac NS
cis-Chlordane	0.0700	a	0.0700 ac NS	0.1100 ac NS	0.0700 ac NS
cis-Nonachlor	0.1900	a	0.0300 a NS	0.2320 a NS	0.0300 a NS
Oxychlordane	0.0200	a	0.0200 ac NS	0.0200 ac NS	0.0200 ac NS
trans-Chlordane	0.0600	a	0.0600 ac NS	0.0600 ac NS	0.0600 ac NS
trans-Nonachlor	0.0500	a	0.0500 ac NS	0.4560 ac S	0.0960 ac NS
Total Chlordanes	0.3900		0.2300	0.8780	0.2760
4,4'-DDD	0.2900	a	0.4480 NS	0.6020 S	0.4140 a NS
4,4'-DDE	0.0200	a	0.0200 ac NS	0.0200 ac NS	0.0200 ac NS
4,4'-DDT	0.0300	a	0.0300 ac NS	0.1040 ac NS	0.1080 ac NS
Total DDT	0.3400		0.4980	0.7260	0.5420

BL - Analysis was confounded due to naphthalene found in the blank.

U - Analyte undetected in all replicates; value is mean of 1/2 reported detection limits.

NA - Not Analyzed.

S - Treatment mean is statistically greater than reference mean (State statistical test and data transformation methods used).

a - Analyte undetected in at least one replicate. Means calculated using 1/2 reported detection limit for undetected replicates

b - Analyte was detected in the treatment at a higher mean concentration than reference;
statistical analysis not conducted because analyte was not detected in any reference replicates.

NS - Treatment mean is not significantly greater than reference mean (State statistical and data transformation methods used).

J - Reported estimated concentration below the batch-specific Practical Quantitation Limit but greater than or equal to the matrix-specific Method Detection Limit.

c - Analyte was detected in the Treatment sample at a higher mean concentration than Reference;
statistical analyses not conducted because analyte was not detected in any Reference replicates.

d - Analyte was not detected in the Treatment sample. Statistical analyses not conducted.

Table 2a. (Composite 1) Highest Replicate Concentrations (Wet Weight) for the Statistically Significant Accumulated Contaminants used in the Risk-Based Evaluations

Project Site: CITGO Terminal South Portland, Maine
 Project Number: NAE-2006-03991
 Sample ID: Composite 1
 Organism: Macoma nasuta

Column A	Col. B	Col. C	Col. D	Col. E	Col. F
CONTAMINANT	TEF	TEST RAW	TEST TEQ	REF RAW	REF TEQ
Metals					
Chromium		0.57000		0.40000	
Copper		2.67000		1.78000	
Lead		0.65000		0.34000	
Nickel		0.54000		0.46000	
Zinc		13.8000		11.0000	
PAHs					
Fluoranthene		33.0000		3.00000	
Pyrene		65.0000		5.00000	
Carcinogenic PAHs					
Benzo(a)anthracene	0.1000	13.0000	1.30000	2.00000	0.20000
Benzo(a)pyrene	1.0000	10.0000	10.0000	1.00000	1.00000
Benzo(b)fluoranthene	0.1000	13.0000	1.30000	2.00000	0.20000
Benzo(k)fluoranthene	0.0100	10.0000	0.10000	9.00000	0.09000
Chrysene	0.0010	14.0000	0.01400	4.00000	0.00400
Dibenzo(a,h)anthracene	1.0000	1.00000	1.00000	1.00000	1.00000
Indeno(1,2,3-c,d)pyrene	0.1000	1.00000	0.10000	1.00000	0.10000
Pesticides					
4,4'-DDD		0.74000		0.08000	
4,4'-DDE		0.44000		0.02000	
4,4'-DDT		0.47000		0.03000	
Total PCBs					
Total PCBs		4.78000		1.39000	

Table 2a. (Composite 2) Highest Replicate Concentrations (Wet Weight) for the Statistically Significant Accumulated Contaminants used in the Risk-Based Evaluations

Project Site: CITGO Terminal South Portland, Maine
 Project Number: NAE-2006-03991
 Sample ID: Composite 2
 Organism: Macoma nasuta

Column A	Col. B	Col. C	Col. D	Col. E	Col. F
CONTAMINANT	TEF	TEST RAW	TEST TEQ	REF RAW	REF TEQ
Metals					
Lead		0.54000		0.34000	
Zinc		13.7000		11.0000	
PAHs					
Acenaphthene		14.0000		1.00000	
Acenaphthylene		5.00000		3.00000	
Anthracene		12.0000		6.00000	
Benzo(g,h,i)perylene		2.00000		1.00000	
Fluoranthene		280.000		3.00000	
Fluorene		8.40000		2.00000	
Naphthalene		4.00000		2.00000	
Phenanthrene		51.0000		12.0000	
Pyrene		260.000		5.00000	
Carcinogenic PAHs					
Benzo(a)anthracene	0.1000	54.0000	5.40000	2.00000	0.20000
Benzo(a)pyrene	1.0000	13.0000	1.30000	1.00000	1.00000
Benzo(b)fluoranthene	0.1000	27.0000	2.70000	2.00000	0.20000
Benzo(k)fluoranthene	0.0100	18.0000	0.18000	9.00000	0.09000
Chrysene	0.0010	42.0000	0.04200	4.00000	0.00400
Dibenzo(a,h)anthracene	1.0000	2.00000	2.00000	1.00000	1.00000
Indeno(1,2,3-c,d)pyrene	0.1000	2.00000	0.20000	1.00000	0.10000
Pesticides					
4,4'-DDD		0.57000		0.08000	
4,4'-DDE		0.02000		0.02000	
4,4'-DDT		0.03000		0.03000	
cis-Chlordane		0.30000		0.07000	
cis-Nonachlor		0.70000		0.03000	
Oxychlordane		0.02000		0.02000	
trans-Chlordane		0.06000		0.06000	
trans-Nonachlor		0.05000		0.05000	
Total PCBs					
Total PCBs		3.46000		1.39000	

Table 2a. (Composite 3) Highest Replicate Concentrations (Wet Weight) for the Statistically Significant Accumulated Contaminants used in the Risk-Based Evaluations

Project Site: CITGO Terminal South Portland, Maine
 Project Number: NAE-2006-03991
 Sample ID: Composite 3
 Organism: Macoma nasuta

Column A	Col. B	Col. C	Col. D	Col. E	Col. F
CONTAMINANT	TEF	TEST RAW	TEST TEQ	REF RAW	REF TEQ
Metals					
Lead		1.20000		0.34000	
Nickel		0.49000		0.46000	
Zinc		14.2000		11.0000	
PAHs					
Acenaphthene		2.00000		1.00000	
Acenaphthylene		5.00000		3.00000	
Anthracene		10.0000		6.00000	
Benzo(g,h,i)perylene		2.00000		1.00000	
Fluoranthene		46.0000		3.00000	
Fluorene		3.00000		2.00000	
Naphthalene		4.00000		2.00000	
Pyrene		110.0000		5.00000	
Carcinogenic PAHs					
Benzo(a)anthracene	0.1000	15.0000	1.50000	2.00000	0.20000
Benzo(a)pyrene	1.0000	1.00000	1.00000	1.00000	1.00000
Benzo(b)fluoranthene	0.1000	13.0000	1.30000	2.00000	0.20000
Benzo(k)fluoranthene	0.0100	13.0000	0.13000	9.00000	0.09000
Chrysene	0.0010	15.0000	0.01500	4.00000	0.00400
Dibenzo(a,h)anthracene	1.0000	2.00000	2.00000	1.00000	1.00000
Indeno(1,2,3-c,d)pyrene	0.1000	2.00000	0.20000	1.00000	0.10000
Pesticides					
4,4'-DDD		1.20000		0.08000	
4,4'-DDE		0.42000		0.02000	
4,4'-DDT		0.44000		0.03000	
Total PCBs					
Total PCBs		4.18000		1.39000	

Table 2b. (Composite 1) Highest Replicate Concentrations (Wet Weight) for the Statistically Significant Accumulated Contaminants used in the Risk-Based Evaluations

Project Site: CITGO Terminal South Portland, Maine
 Project Number: NAE-2006-03991
 Sample ID: Composite 1
 Organism: Nereis virens

Column A	Col. B	Col. C	Col. D	Col. E	Col. F
----------	--------	--------	--------	--------	--------

CONTAMINANT	TEF	TEST RAW	TEST TEQ	REF RAW	REF TEQ
Pesticides					
Endrin		1.20000		0.90000	

Table 2b. (Composite 2) Highest Replicate Concentrations (Wet Weight) for the Statistically Significant Accumulated Contaminants used in the Risk-Based Evaluations

Project Site: CITGO Terminal South Portland, Maine
 Project Number: NAE-2006-03991
 Sample ID: Composite 2
 Organism: Nereis virens

Column A	Col. B	Col. C	Col. D	Col. E	Col. F
----------	--------	--------	--------	--------	--------

CONTAMINANT	TEF	TEST RAW	TEST TEQ	REF RAW	REF TEQ
<u>PAHs</u>					
Acenaphthene		24.0000		2.00000	
Fluoranthene		86.0000		5.00000	
Pyrene		52.0000		7.00000	
<u>Pesticides</u>					
Heptachlor		0.41000		0.06000	
4,4'-DDD		0.59000		0.63000	
4,4'-DDE		0.02000		0.02000	
4,4'-DDT		0.40000		0.03000	
cis-Chlordane		0.27000		0.07000	
Oxychlordane		0.02000		0.02000	
trans-Chlordane		0.06000		0.06000	
trans-Nonachlor		0.84000		0.05000	

Table 2b. (Composite 3) Highest Replicate Concentrations (Wet Weight) for the Statistically Significant Accumulated Contaminants used in the Risk-Based Evaluations

Project Site: CITGO Terminal South Portland, Maine
 Project Number: NAE-2006-03991
 Sample ID: Composite 3
 Organism: Nereis virens

Column A	Col. B	Col. C	Col. D	Col. E	Col. F
----------	--------	--------	--------	--------	--------

CONTAMINANT	TEF	TEST RAW	TEST TEQ	REF RAW	REF TEQ
PAHs					
Pyrene		15.0000		7.00000	

Table 3a.1- Comparison of Steady State Corrected Clam and Worm Body Burdens (ppb, wet weight) with U.S. FDA Action/Tolerance Levels

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: *Macoma nasuta*

Sample Location	Contaminant	Mean Tissue Concentration	(1) Steady State Correction Factor	(2) Mean Tissue Concentration	(3) FDA Action Level	Exceeds FDA Action Level
<u>Metals (ug/g wet weight)</u>						
Composite 1	Mercury	0.0080	1.00	0.0080	1	NO
Composite 2	Mercury	0.0080	1.00	0.0080	1	NO
Composite 3	Mercury	0.0070	1.00	0.0070	1	NO
<u>PCB Congeners (ng/g wet weight)</u>						
Composite 1	Total PCBs	3.3600	2.22	7.4592	2000	NO
Composite 2	Total PCBs	3.0000	2.22	6.6600	2000	NO
Composite 3	Total PCBs	3.2800	2.22	7.2816	2000	NO
<u>Pesticides (ng/g wet weight)</u>						
Composite 1	cis-Chlordane	0.0700	2.00	0.1400		
	cis-Nonachlor	0.2960		0.2960		
	Oxychlordane	0.0200		0.0200		
	trans-Chlordane	0.0600	2.00	0.1200		
	trans-Nonachlor	0.0500	2.00	0.1000		
	Total Chlordanes	0.4960		0.6760	300	NO
	4,4'-DDD	0.6380	2.00	1.2760		
	4,4'-DDE	0.4520	1.54	0.6961		
	4,4'-DDT	0.1180	1.54	0.1817		
	Total DDT	1.2080		2.1538	5000	NO
Composite 2	cis-Chlordane	0.1600	2.00	0.3200		
	cis-Nonachlor	0.5860		0.5860		
	Oxychlordane	0.0200		0.0200		
	trans-Chlordane	0.0600	2.00	0.1200		
	trans-Nonachlor	0.0500	2.00	0.1000		
	Total Chlordanes	0.8760		1.1460	300	NO
	4,4'-DDD	0.3320	2.00	0.6640		
	4,4'-DDE	0.0200	1.54	0.0308		

1 - Derived from Figure 6.1, EPA/ACE (1998)

2 - The Product of the mean and Steady State Correction Factor

3 - From Table 6.1, EPA/ACE (1998)

Table 3a.2- Comparison of Steady State Corrected Clam and Worm Body Burdens (ppb, wet weight) with U.S. FDA Action/Tolerance Levels

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: *Macoma nasuta*

Sample Location	Contaminant	Mean Tissue Concentration	(1) Steady State Correction Factor	(2) Mean Tissue Concentration	(3) FDA Action Level	Exceeds FDA Action Level
Composite 2	4,4'-DDT	0.0300	1.54	0.0462	5000	NO
	Total DDT	0.3820		0.7410		
Composite 3	cis-Chlordane	0.0700	2.00	0.1400	300	NO
	cis-Nonachlor	0.5640		0.5640		
	Oxychlordane	0.0200		0.0200		
	trans-Chlordane	0.0600		0.1200		
	trans-Nonachlor	0.0500	2.00	0.1000		
	Total Chlordanes	0.7640		0.9440		
	4,4'-DDD	0.5940	2.00	1.1880	5000	NO
	4,4'-DDE	0.2040		0.3142		
	4,4'-DDT	0.1120		0.1725		
	Total DDT	0.9100		1.6746		

1 - Derived from Figure 6.1, EPA/ACE (1998)

2 - The Product of the mean and Steady State Correction Factor

3 - From Table 6.1, EPA/ACE (1998)

Table 3b.1- Comparison of Steady State Corrected Clam and Worm Body Burdens (ppb, wet weight) with U.S. FDA Action/Tolerance Levels

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: *Nereis virens*

Sample Location	Contaminant	Mean Tissue Concentration	(1) Steady State Correction Factor	(2) Mean Tissue Concentration	(3) FDA Action Level	Exceeds FDA Action Level
<u>Metals (ug/g wet weight)</u>						
Composite 1	Mercury	0.0060	1.00	0.0060	1	NO
Composite 2	Mercury	0.0060	1.00	0.0060	1	NO
Composite 3	Mercury	0.0030	1.00	0.0030	1	NO
<u>PCB Congeners (ng/g wet weight)</u>						
Composite 1	Total PCBs	4.6800	2.22	10.3896	2000	NO
Composite 2	Total PCBs	4.2000	2.22	9.3240	2000	NO
Composite 3	Total PCBs	4.0900	2.22	9.0798	2000	NO
<u>Pesticides (ng/g wet weight)</u>						
Composite 1	cis-Chlordane	0.0700	2.00	0.1400		
	cis-Nonachlor	0.0300		0.0300		
	Oxychlordane	0.0200		0.0200		
	trans-Chlordane	0.0600	2.00	0.1200		
	trans-Nonachlor	0.0500	2.00	0.1000		
	Total Chlordanes	0.2300		0.4100	300	NO
	4,4'-DDD	0.4480	2.00	0.8960		
	4,4'-DDE	0.0200	1.54	0.0308		
	4,4'-DDT	0.0300	1.54	0.0462		
	Total DDT	0.4980		0.9730	5000	NO
Composite 2	cis-Chlordane	0.1100	2.00	0.2200		
	cis-Nonachlor	0.2320		0.2320		
	Oxychlordane	0.0200		0.0200		
	trans-Chlordane	0.0600	2.00	0.1200		
	trans-Nonachlor	0.4560	2.00	0.9120		
	Total Chlordanes	0.8780		1.5040	300	NO
	4,4'-DDD	0.6020	2.00	1.2040		
	4,4'-DDE	0.0200	1.54	0.0308		

1 - Derived from Figure 6.1, EPA/ACE (1998)

2 - The Product of the mean and Steady State Correction Factor

3 - From Table 6.1, EPA/ACE (1998)

Table 3b.2- Comparison of Steady State Corrected Clam and Worm Body Burdens (ppb, wet weight) with U.S. FDA Action/Tolerance Levels

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: *Nereis virens*

Sample Location	Contaminant	Mean Tissue Concentration	(1) Steady State Correction Factor	(2) Mean Tissue Concentration	(3) FDA Action Level	Exceeds FDA Action Level
Composite 2	4,4'-DDT	0.1040	1.54	0.1602	5000	NO
	Total DDT	0.7260		1.3950		
Composite 3	cis-Chlordane	0.0700	2.00	0.1400	300	NO
	cis-Nonachlor	0.0300		0.0300		
	Oxychlordane	0.0200		0.0200		
	trans-Chlordane	0.0600	2.00	0.1200		
	trans-Nonachlor	0.0960		0.1920		
	Total Chlordanes	0.2760	2.00	0.5020		
	4,4'-DDD	0.4140		0.8280		
	4,4'-DDE	0.0200		0.0308		
	4,4'-DDT	0.1080	1.54	0.1663	5000	NO
	Total DDT	0.5420		1.0251		

1 - Derived from Figure 6.1, EPA/ACE (1998)

2 - The Product of the mean and Steady State Correction Factor

3 - From Table 6.1, EPA/ACE (1998)

Table 4a Carcinogenic Risk Summary of all Composites
Project Site: CITGO Terminal South Portland, Maine
Project Number: NAE-2006-03991
Organism: Macoma nasuta

Sampling Point	Column A	Column B	Column C	Column D	Column E	Column F
	TEST	REFERENCE				
Composite 1	9.87E-05	1.91E-05	1.99E-05	2.07E-05	4.01E-06	4.19E-06
Composite 2	1.54E-04	2.99E-05	3.12E-05	2.08E-05	4.02E-06	4.20E-06
Composite 3	5.15E-05	9.97E-06	1.04E-05	2.07E-05	4.01E-06	4.19E-06

Table 4b Carcinogenic Risk Summary of all Composites
 Project Site: CITGO Terminal South Portland, Maine
 Project Number: NAE-2006-03991
 Organism: Nereis virens

Sampling Point	Column A	Column B	Column C	Column D	Column E	Column F
	TEST	REFERENCE				
Composite 2	Total Estimated Lobster Risk 1.30E-06	Total Estimated Fish Risk 2.52E-07	Total Estimated Molluscan Shellfish Risk 3.21E-07	Total Estimated Lobster Risk 3.24E-07	Total Estimated Fish Risk 6.27E-08	Total Estimated Molluscan Shellfish Risk 7.87E-08

Table 5a. (Composite 1) Non-Carcinogenic Risk Summary

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Sampling ID: Composite 1 - Macoma nasuta

Contaminant	Column A	Column B	Column C	Column D	Column E	Column F
	TEST	REFERENCE				
Fluoranthene	4.49E-04	8.69E-05	9.55E-05	4.08E-05	7.90E-06	8.68E-06
Pyrene	8.76E-04	1.70E-04	1.93E-04	6.74E-05	1.31E-05	1.49E-05
Total PCBs	2.28E-01	4.42E-02	4.55E-02	6.63E-02	1.28E-02	1.32E-02
Total DDT	2.41E-03	4.67E-04	4.94E-04	1.99E-04	3.86E-05	4.06E-05

Table 5a. (Composite 2) Non-Carcinogenic Risk Summary

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Sampling ID: Composite 2 - Macoma nasuta

Contaminant	Column A	Column B	Column C	Column D	Column E	Column F
	TEST	REFERENCE				
Acenaphthene	8.93E-05	1.73E-05	2.00E-05	6.38E-06	1.24E-06	1.43E-06
Acenaphthylene	3.19E-05	6.18E-06	7.14E-06	1.91E-05	3.71E-06	4.29E-06
Anthracene	1.53E-05	2.97E-06	3.43E-06	7.67E-06	1.49E-06	1.71E-06
Fluoranthene	3.81E-03	7.38E-04	8.10E-04	4.08E-05	7.90E-06	8.68E-06
Fluorene	8.07E-05	1.56E-05	1.80E-05	1.92E-05	3.72E-06	4.29E-06
Naphthalene	7.65E-05	1.48E-05	1.71E-05	3.83E-05	7.41E-06	8.57E-06
Pyrene	3.50E-03	6.79E-04	7.73E-04	6.74E-05	1.31E-05	1.49E-05
Total PCBs	1.65E-01	3.20E-02	3.29E-02	6.63E-02	1.28E-02	1.32E-02
Total DDT	1.03E-03	2.00E-04	2.09E-04	1.99E-04	3.86E-05	4.06E-05
Total Chlordanes	6.97E-04	1.35E-04	1.41E-04	3.06E-04	5.93E-05	6.17E-05

Table 5a. (Composite 3) Non-Carcinogenic Risk Summary

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Sampling ID: Composite 3 - Macoma nasuta

Contaminant	Column A	Column B	Column C	Column D	Column E	Column F
	TEST	REFERENCE				
Acenaphthene	1.28E-05	2.47E-06	2.86E-06	6.38E-06	1.24E-06	1.43E-06
Acenaphthylene	3.19E-05	6.18E-06	7.14E-06	1.91E-05	3.71E-06	4.29E-06
Anthracene	1.28E-05	2.48E-06	2.86E-06	7.67E-06	1.49E-06	1.71E-06
Fluoranthene	6.25E-04	1.21E-04	1.33E-04	4.08E-05	7.90E-06	8.68E-06
Fluorene	2.88E-05	5.58E-06	6.43E-06	1.92E-05	3.72E-06	4.29E-06
Naphthalene	7.65E-05	1.48E-05	1.71E-05	3.83E-05	7.41E-06	8.57E-06
Pyrene	1.48E-03	2.87E-04	3.27E-04	6.74E-05	1.31E-05	1.49E-05
Total PCBs	1.99E-01	3.86E-02	3.98E-02	6.63E-02	1.28E-02	1.32E-02
Total DDT	3.13E-03	6.06E-04	6.38E-04	1.99E-04	3.86E-05	4.06E-05

Table 5b. (Composite 1) Non-Carcinogenic Risk Summary

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Sampling ID: Composite 1 - *Nereis virens*

Column A	Column B	Column C	Column D	Column E	Column F
	TEST			REFERENCE	
Contaminant	Total Estimated Lobster Risk	Total Estimated Fish Risk	Total Estimated Molluscan Shellfish Risk	Total Estimated Lobster Risk	Total Estimated Fish Risk
Endrin	1.31E-03	2.54E-04	3.43E-04	9.82E-04	1.90E-04

Table 5b. (Composite 2) Non-Carcinogenic Risk Summary

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Sampling ID: Composite 2 - *Nereis virens*

Contaminant	Column A	Column B	Column C	Column D	Column E	Column F
	TEST	REFERENCE				
Acenaphthene	1.30E-04	2.52E-05	3.43E-05	1.08E-05	2.10E-06	2.86E-06
Fluoranthene	9.93E-04	1.92E-04	2.49E-04	5.77E-05	1.12E-05	1.45E-05
Pyrene	5.95E-04	1.15E-04	1.55E-04	8.01E-05	1.55E-05	2.08E-05
Heptachlor	3.48E-04	6.74E-05	8.79E-05	5.09E-05	9.86E-06	1.29E-05
Total DDT	1.30E-03	2.53E-04	3.13E-04	9.63E-04	1.87E-04	2.29E-04
Total Chlordanes	1.69E-03	3.27E-04	4.01E-04	2.60E-04	5.04E-05	6.17E-05

Table 5b. (Composite 3) Non-Carcinogenic Risk Summary

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Sampling ID: Composite 3 - *Nereis virens*

Contaminant	Column A	Column B	Column C	Column D	Column E	Column F
	TEST	REFERENCE				
Pyrene	Total Estimated Lobster Risk 1.72E-04	Total Estimated Fish Risk 3.33E-05	Total Estimated Molluscan Shellfish Risk 4.46E-05	Total Estimated Lobster Risk 8.01E-05	Total Estimated Fish Risk 1.55E-05	Total Estimated Molluscan Shellfish Risk 2.08E-05

Table 6a - Non-Carcinogenic Risk Estimate of Seafood Consumption of Metals.

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Sampling ID: Composite 1 - Macoma nasuta

Species/Tissue Consumed	Column A Concentration Contaminant Mean Test (mg/kg)	Column B Concentration Contaminant Mean Ref (mg/kg)	Column C LADD Test (mg/kg-d)	Column D LADD Ref (mg/kg-d)	Column E Non-Cancer Reference Dose (mg/kg-d)	Column F Non-Cancer Risk Test	Column G Non-Cancer Risk Ref
<u>Composite 1</u>							
Arsenic	2.24E+00	1.93E+00	1.92E-04	1.65E-04	3.00E-04	6.40E-01	5.51E-01
Cadmium	4.00E-02	3.10E-02	3.43E-06	2.66E-06	1.00E-03	3.43E-03	2.66E-03
Chromium	4.66E-01	3.42E-01	3.99E-05	2.93E-05	3.00E-03	1.33E-02	9.77E-03
Nickel	5.02E-01	4.18E-01	4.30E-05	3.58E-05	2.00E-02	2.15E-03	1.79E-03
Zinc	1.17E+01	1.04E+01	1.00E-03	8.93E-04	3.00E-01	3.34E-03	2.98E-03
IR-Seafood	0.014						
FI	1.000						
ED	30.000						
F	365.000						
BW	70.000						
AT	25,550.000						

Table 6a - Non-Carcinogenic Risk Estimate of Seafood Consumption of Metals.

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Sampling ID: Composite 2 - Macoma nasuta

Species/Tissue Consumed	Column A Concentration Contaminant Mean Test (mg/kg)	Column B Concentration Contaminant Mean Ref (mg/kg)	Column C LADD Test (mg/kg-d)	Column D LADD Ref (mg/kg-d)	Column E Non-Cancer Reference Dose (mg/kg-d)	Column F Non-Cancer Risk Test	Column G Non-Cancer Risk Ref
<u>Composite 2</u>							
Zinc	1.18E+01	1.04E+01	1.01E-03	8.93E-04	3.00E-01	3.38E-03	2.98E-03
IR-Seafood	0.014						
FI	1.000						
ED	30.000						
F	365.000						
BW	70.000						
AT	25,550.000						

Table 6a - Non-Carcinogenic Risk Estimate of Seafood Consumption of Metals.

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Sampling ID: Composite 3 - Macoma nasuta

Species/Tissue Consumed	Column A Concentration Contaminant Mean Test (mg/kg)	Column B Concentration Contaminant Mean Ref (mg/kg)	Column C LADD Test (mg/kg-d)	Column D LADD Ref (mg/kg-d)	Column E Non-Cancer Reference Dose (mg/kg-d)	Column F Non-Cancer Risk Test	Column G Non-Cancer Risk Ref
<u>Composite 3</u>							
Nickel	4.56E-01	4.18E-01	3.91E-05	3.58E-05	2.00E-02	1.95E-03	1.79E-03
Zinc	1.17E+01	1.04E+01	1.00E-03	8.93E-04	3.00E-01	3.34E-03	2.98E-03
IR-Seafood	0.014						
FI	1.000						
ED	30.000						
F	365.000						
BW	70.000						
AT	25,550.000						

Table 6 - Non-Carcinogenic Risk Estimate of Seafood Consumption of Metals.

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Sampling ID: Composite 1 - *Nereis virens*

Species/Tissue Consumed	Column A Concentration Contaminant Mean Test (mg/kg)	Column B Concentration Contaminant Mean Ref (mg/kg)	Column C LADD Test (mg/kg-d)	Column D LADD Ref (mg/kg-d)	Column E Non-Cancer Reference Dose (mg/kg-d)	Column F Non-Cancer Risk Test	Column G Non-Cancer Risk Ref
Composite 1 IR-Seafood FI ED F BW AT	0.014 1.000 30.000 365.000 70.000 25,550.000	(Analytes were undetected in all replicates and/or were not significantly greater than reference mean)					

Table 6 - Non-Carcinogenic Risk Estimate of Seafood Consumption of Metals.

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Sampling ID: Composite 2 - *Nereis virens*

Species/Tissue Consumed	Column A Concentration Contaminant Mean Test (mg/kg)	Column B Concentration Contaminant Mean Ref (mg/kg)	Column C LADD Test (mg/kg-d)	Column D LADD Ref (mg/kg-d)	Column E Non-Cancer Reference Dose (mg/kg-d)	Column F Non-Cancer Risk Test	Column G Non-Cancer Risk Ref
Composite 2 IR-Seafood FI ED F BW AT	0.014 1.000 30.000 365.000 70.000 25,550.000	(Analytes were undetected in all replicates and/or were not significantly greater than reference mean)					

Table 6 - Non-Carcinogenic Risk Estimate of Seafood Consumption of Metals.

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Sampling ID: Composite 3 - *Nereis virens*

Species/Tissue Consumed	Column A Concentration Contaminant Mean Test (mg/kg)	Column B Concentration Contaminant Mean Ref (mg/kg)	Column C LADD Test (mg/kg-d)	Column D LADD Ref (mg/kg-d)	Column E Non-Cancer Reference Dose (mg/kg-d)	Column F Non-Cancer Risk Test	Column G Non-Cancer Risk Ref
Composite 3 IR-Seafood FI ED F BW AT	0.014 1.000 30.000 365.000 70.000 25,550.000	(Analytes were undetected in all replicates and/or were not significantly greater than reference mean)					

Table 7a Comparison of Clam and Worm Body Burdens with U.S. FDA Shellfish Levels of Concern.

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: Macoma nasuta (ppm)

	Column A	Column B	Column C	Column D	Column E	Column F	Column G	Column H
Species/Tissue Consumed	Contaminant	Mean Concentration Contaminant	Steady State Correction Factor	FDA Level of Concern	FDA Level of Concern Reference			
Composite 1	Arsenic	2.240	1.00	86.00	(FDA Level of Concern Source: FDA 1993)			
Composite 1	Cadmium	0.040	1.00	3.70	(FDA Level of Concern Source: FDA 1993)			
Composite 1	Chromium	0.466	1.00	13.00	(FDA Level of Concern Source: FDA 1993a)			
Composite 1	Lead	0.514	1.00	1.70	(FDA Level of Concern Source: FDA 1993b)			
Composite 1	Nickel	0.502	1.00	80.00	(FDA Level of Concern Source: FDA 1993)			
Composite 2	Lead	0.460	1.00	1.70	(FDA Level of Concern Source: FDA 1993b)			
Composite 3	Lead	0.636	1.00	1.70	(FDA Level of Concern Source: FDA 1993b)			
Composite 3	Nickel	0.456	1.00	80.00	(FDA Level of Concern Source: FDA 1993)			

Table 7b Comparison of Clam and Worm Body Burdens with U.S. FDA Shellfish Levels of Concern.

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: ***Nereis virens***

	Column A	Column B	Column C	Column D	Column E	Column F	Column G	Column H
Species/Tissue Consumed	Contaminant	Mean Concentration Contaminant	Steady State Correction Factor	FDA Level of Concern	FDA Level of Concern Reference			
Composite 1		(Analytes were undetected in all replicates and/or did not exceed the FDA Level of Concern)						
Composite 2		(Analytes were undetected in all replicates and/or did not exceed the FDA Level of Concern)						
Composite 3		(Analytes were undetected in all replicates and/or did not exceed the FDA Level of Concern)						

Table 8a.1- Comparison of Steady State Corrected Clam and Wrm Body Burdens with Non-Specific Ecological Effects Levels

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: Macoma nasuta

Sample Location	Contaminant	Column A Mean Tissue Concentration	Column B (1) Steady State Correction Factor	Column C (2) Mean Tissue Concentration	Column D (3) Ecological Effect Level	Column F Exceeds Ecological Effect Level
<u>Metals (ug/g wet weight)</u>						
Composite 1	Arsenic	2.240	1.00	2.240	12.60	NO
	Cadmium	0.040	1.00	0.040	3.03	NO
	Chromium	0.466	1.00	0.466	11.80	NO
	Copper	2.110	1.00	2.110	9.60	NO
	Lead	0.514	1.00	0.514	11.90	NO
	Mercury	0.008	1.00	0.008	0.20	NO
	Nickel	0.502	1.00	0.502	3.80	NO
	Zinc	11.700	1.00	11.700	1517.00	NO
Composite 2	Arsenic	2.210	1.00	2.210	12.60	NO
	Cadmium	0.033	1.00	0.033	3.03	NO
	Chromium	0.354	1.00	0.354	11.80	NO
	Copper	1.540	1.00	1.540	9.60	NO
	Lead	0.460	1.00	0.460	11.90	NO
	Mercury	0.008	1.00	0.008	0.20	NO
	Nickel	0.422	1.00	0.422	3.80	NO
	Zinc	11.840	1.00	11.840	1517.00	NO
Composite 3	Arsenic	2.000	1.00	2.000	12.60	NO
	Cadmium	0.035	1.00	0.035	3.03	NO
	Chromium	0.376	1.00	0.376	11.80	NO
	Copper	1.760	1.00	1.760	9.60	NO
	Lead	0.636	1.00	0.636	11.90	NO
	Mercury	0.007	1.00	0.007	0.20	NO
	Nickel	0.456	1.00	0.456	3.80	NO
	Zinc	11.700	1.00	11.700	1517.00	NO
<u>PAHs (ng/g wet weight)</u>						
Composite 1	Benzo(a)pyrene	5.880	2.00	11.760	8000.00	NO
	Anthracene	6.000	1.00	6.000	3750.00	NO
	PAH Total	170.100	1.00	170.100	10000.00	NO
Composite 2	Benzo(a)pyrene	9.800	2.00	19.600	8000.00	NO

1 - Derived from Figure 6.1, EPA/ACE (1998)

2 - The Product of the mean and Steady State Correction Factor

3 - From Table 6.1, EPA/ACE (1998)

Table 8a.2- Comparison of Steady State Corrected Clam and Wrm Body Burdens with Non-Specific Ecological Effects Levels

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: Macoma nasuta

Sample Location	Contaminant	Mean Tissue Concentration	(1) Steady State Correction Factor	(2) Mean Tissue Concentration	(3) Ecological Effect Level	Exceeds Ecological Effect Level
Composite 2	Anthracene	10.460	1.00	10.460	3750.00	NO
	PAH Total	620.160	1.00	620.160	10000.00	NO
Composite 3	Benzo(a)pyrene	1.000	2.00	2.000	8000.00	NO
	Anthracene	10.000	1.00	10.000	3750.00	NO
	PAH Total	214.200	1.00	214.200	10000.00	NO
<u>PCB Congeners (ng/g wet weight)</u>						
Composite 1	Total PCBs	3.360	2.22	7.459	4000.00	NO
Composite 2	Total PCBs	3.000	2.22	6.660	4000.00	NO
Composite 3	Total PCBs	3.280	2.22	7.282	4000.00	NO
<u>Pesticides (ng/g wet weight)</u>						
Composite 1	Aldrin	0.030	1.00	0.030	299.00	NO
	Dieldrin	0.040	1.35	0.054	4.37	NO
	Endosulfans	0.090	1.00	0.090	2.86	NO
	4,4'-DDD	0.638	2.00	1.276		
	4,4'-DDE	0.452	1.54	0.696		
	4,4'-DDT	0.118	1.54	0.182		
	Total DDT	1.208		2.154	3000.00	NO
Composite 2	Aldrin	0.030	1.00	0.030	299.00	NO
	Dieldrin	0.040	1.35	0.054	4.37	NO
	Endosulfans	0.090	1.00	0.090	2.86	NO
	4,4'-DDD	0.332	2.00	0.664		
	4,4'-DDE	0.020	1.54	0.031		
	4,4'-DDT	0.030	1.54	0.046		

1 - Derived from Figure 6.1, EPA/ACE (1998)

2 - The Product of the mean and Steady State Correction Factor

3 - From Table 6.1, EPA/ACE (1998)

Table 8a.3- Comparison of Steady State Corrected Clam and Wrm Body Burdens with Non-Specific Ecological Effects Levels

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: Macoma nasuta

Sample Location	Contaminant	Mean Tissue Concentration	(1) Steady State Correction Factor	(2) Mean Tissue Concentration	(3) Ecological Effect Level	Exceeds Ecological Effect Level
Composite 3	Total DDT	0.382		0.741	3000.00	NO
	Aldrin	0.030		0.030	299.00	NO
	Dieldrin	0.114		0.154	4.37	NO
	Endosulfans	0.090		0.090	2.86	NO
	4,4'-DDD	0.594		1.188		
	4,4'-DDE	0.204		0.314		
	4,4'-DDT	0.112		0.172		
	Total DDT	0.910		1.675	3000.00	NO

1 - Derived from Figure 6.1, EPA/ACE (1998)

2 - The Product of the mean and Steady State Correction Factor

3 - From Table 6.1, EPA/ACE (1998)

Table 8b.1- Comparison of Steady State Corrected Clam and Wrm Body Burdens with Non-Specific Ecological Effects Levels

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: *Nereis virens*

Sample Location	Contaminant	Column A Mean Tissue Concentration	Column B (1) Steady State Correction Factor	Column C (2) Mean Tissue Concentration	Column D (3) Ecological Effect Level	Column F Exceeds Ecological Effect Level
<u>Metals (ug/g wet weight)</u>						
Composite 1	Arsenic	1.810	1.00	1.810	12.60	NO
	Cadmium	0.030	1.00	0.030	3.03	NO
	Chromium	0.063	1.00	0.063	11.80	NO
	Copper	1.000	1.00	1.000	9.60	NO
	Lead	0.086	1.00	0.086	11.90	NO
	Mercury	0.006	1.00	0.006	0.20	NO
	Nickel	0.111	1.00	0.111	3.80	NO
	Zinc	18.580	1.00	18.580	1517.00	NO
Composite 2	Arsenic	2.000	1.00	2.000	12.60	NO
	Cadmium	0.034	1.00	0.034	3.03	NO
	Chromium	0.070	1.00	0.070	11.80	NO
	Copper	1.080	1.00	1.080	9.60	NO
	Lead	0.094	1.00	0.094	11.90	NO
	Mercury	0.006	1.00	0.006	0.20	NO
	Nickel	0.138	1.00	0.138	3.80	NO
	Zinc	14.280	1.00	14.280	1517.00	NO
Composite 3	Arsenic	1.700	1.00	1.700	12.60	NO
	Cadmium	0.034	1.00	0.034	3.03	NO
	Chromium	0.062	1.00	0.062	11.80	NO
	Copper	1.040	1.00	1.040	9.60	NO
	Lead	0.084	1.00	0.084	11.90	NO
	Mercury	0.003	1.00	0.003	0.20	NO
	Nickel	0.138	1.00	0.138	3.80	NO
	Zinc	10.980	1.00	10.980	1517.00	NO
<u>PAHs (ng/g wet weight)</u>						
Composite 1	Benzo(a)pyrene	1.000	2.00	2.000	8000.00	NO
	Anthracene	10.000	1.00	10.000	3750.00	NO
	PAH Total	77.480	1.00	77.480	10000.00	NO
Composite 2	Benzo(a)pyrene	1.000	2.00	2.000	8000.00	NO

1 - Derived from Figure 6.1, EPA/ACE (1998)

2 - The Product of the mean and Steady State Correction Factor

3 - From Table 6.1, EPA/ACE (1998)

Table 8b.2- Comparison of Steady State Corrected Clam and Wrm Body Burdens with Non-Specific Ecological Effects Levels

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: *Nereis virens*

Sample Location	Contaminant	Mean Tissue Concentration	(1) Steady State Correction Factor	(2) Mean Tissue Concentration	(3) Ecological Effect Level	Exceeds Ecological Effect Level
Composite 2	Anthracene	10.000	1.00	10.000	3750.00	NO
	PAH Total	177.640	1.00	177.640	10000.00	NO
Composite 3	Benzo(a)pyrene	1.000	2.00	2.000	8000.00	NO
	Anthracene	10.000	1.00	10.000	3750.00	NO
	PAH Total	81.160	1.00	81.160	10000.00	NO
<u>PCB Congeners (ng/g wet weight)</u>						
Composite 1	Total PCBs	4.680	2.22	10.390	4000.00	NO
Composite 2	Total PCBs	4.200	2.22	9.324	4000.00	NO
Composite 3	Total PCBs	4.090	2.22	9.080	4000.00	NO
<u>Pesticides (ng/g wet weight)</u>						
Composite 1	Aldrin	0.030	1.00	0.030	299.00	NO
	Dieldrin	0.040	1.35	0.054	4.37	NO
	Endosulfans	0.090	1.00	0.090	2.86	NO
	4,4'-DDD	0.448	2.00	0.896		
	4,4'-DDE	0.020	1.54	0.031		
	4,4'-DDT	0.030	1.54	0.046		
	Total DDT	0.498		0.973	3000.00	NO
Composite 2	Aldrin	0.030	1.00	0.030	299.00	NO
	Dieldrin	0.122	1.35	0.165	4.37	NO
	Endosulfans	0.090	1.00	0.090	2.86	NO
	4,4'-DDD	0.602	2.00	1.204		
	4,4'-DDE	0.020	1.54	0.031		
	4,4'-DDT	0.104	1.54	0.160		

1 - Derived from Figure 6.1, EPA/ACE (1998)

2 - The Product of the mean and Steady State Correction Factor

3 - From Table 6.1, EPA/ACE (1998)

Table 8b.3- Comparison of Steady State Corrected Clam and Wrm Body Burdens with Non-Specific Ecological Effects Levels

Project Site: CITGO Terminal South Portland, Maine

Project Number: NAE-2006-03991

Organism: Nereis virens

Sample Location	Contaminant	Mean Tissue Concentration	(1) Steady State Correction Factor	(2) Mean Tissue Concentration	(3) Ecological Effect Level	Exceeds Ecological Effect Level
Composite 3	Total DDT	0.726		1.395	3000.00	NO
	Aldrin	0.030		0.030	299.00	NO
	Dieldrin	0.040		0.054	4.37	NO
	Endosulfans	0.090		0.090	2.86	NO
	4,4'-DDD	0.414		0.828		
	4,4'-DDE	0.020	2.00	0.031		
	4,4'-DDT	0.108	1.54	0.166		
	Total DDT	0.542		1.025	3000.00	NO

1 - Derived from Figure 6.1, EPA/ACE (1998)

2 - The Product of the mean and Steady State Correction Factor

3 - From Table 6.1, EPA/ACE (1998)

Page No.: 3